Nutritive Value of Whole Raw and Roasted Sunflowers for High Producing Dairy Cows

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Whole sunflower seeds have the benefit of providing lactating dairy cows with fat, fiber, and protein. Sunflower seeds range in fat from 35 to 45% and provide a rich source of polyunsaturated fatty acids, in particular linoleic acid (18:2). Dairy cows have the ability to convert 18:2 into conjugated linoleic acid (CLA; cis-9, trans-11 18:2) in milk fat. Previous research has shown that raw sunflower seeds are effective in increasing milk CLA levels, but no studies have been performed to evaluate the effect of roasted sunflower seeds.

The objectives for this work: 1) to evaluate the production responses of high producing dairy cows fed whole raw or roasted sunflower seeds and 2) to determine if feeding either whole raw or roasted sunflower seeds would produce an appreciable response in CLA in milk fat. Eight cows were randomly assigned to four treatments: 1) Control (standard dairy concentrate), 2) 0.75 kg/d whole raw sunflower seeds (RSF), 3) 0.75 kg/d whole roasted sunflower seeds (LRT), and 4) 1.50 kg/d whole roasted sunflower seeds (HRT). Sunflower seeds were fed as part of the concentrate mix. A TMR fed twice a day was formulated to provide a 50:50 forage to concentrate ratio.

Intake, feeding behavior, milk production, and milk composition showed no differences between treatments. All the sunflower treatments resulted in a significant reduction in milk protein percent. Cows fed HRT generated 11x more CLA in their milk fat compared to the control (HRT = 14.1 g/d versus Control = 1.26 g/d). Fat was digested more effectively when cows were fed HRT and RSF but protein digestion did not differ between treatments. LRT resulted in a reduction in fiber digestion. The amount of dry matter digested was reduced for both levels of roasted sunflower seeds.

Take Home Message: Both raw and roasted sunflower seeds performed as well as a standard dairy concentrate. Cows fed the higher level of roasted sunflower seeds produced substantially more CLA in the milk fat than the other treatments, which is favorable in terms of human health.